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(54) **CLEANOUT BOOM**

(71) Applicants: **Luis F. Lopez**, Miami, FL (US); **Emmanuel Pacin**, Miami, FL (US)

(72) Inventors: **Luis F. Lopez**, Miami, FL (US); **Emmanuel Pacin**, Miami, FL (US)

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E04D 15/00	(2006.01)
E04D 13/076	(2006.01)

(52) **U.S. Cl.**

CPC ***E04D 15/00*** (2013.01); ***E04D 13/0765*** (2013.01); ***E04D 15/006*** (2013.01)

(58) **Field of Classification Search**

CPC F16L 37/002; F16L 27/12; E04D 15/006; E04D 13/0765
USPC 285/920, 302
See application file for complete search history.

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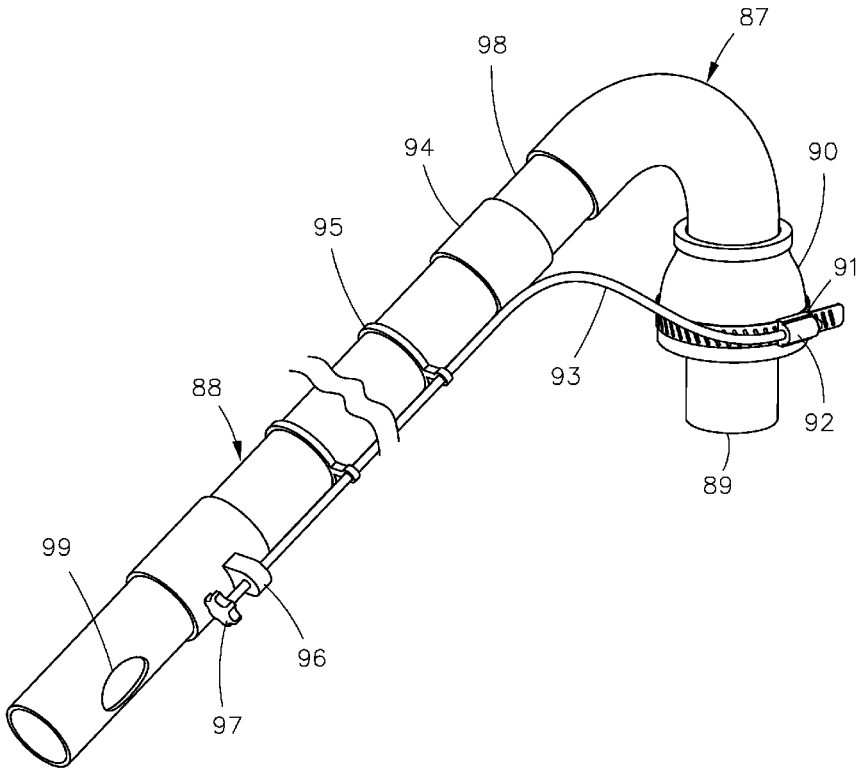
Primary Examiner — David E Bochna
(74) *Attorney, Agent, or Firm* — Christopher J. Vandam, PA; Chris Vandam

(57) **ABSTRACT**

A cleanout boom for guiding a plumbing snake, pressure washer, camera or a similar apparatus into a vent pipe on the roof of a structure. A head assembly with a remote mechanism to attach the head assembly to the vent. The device can be entirely operated from the ground.

7 Claims, 4 Drawing Sheets



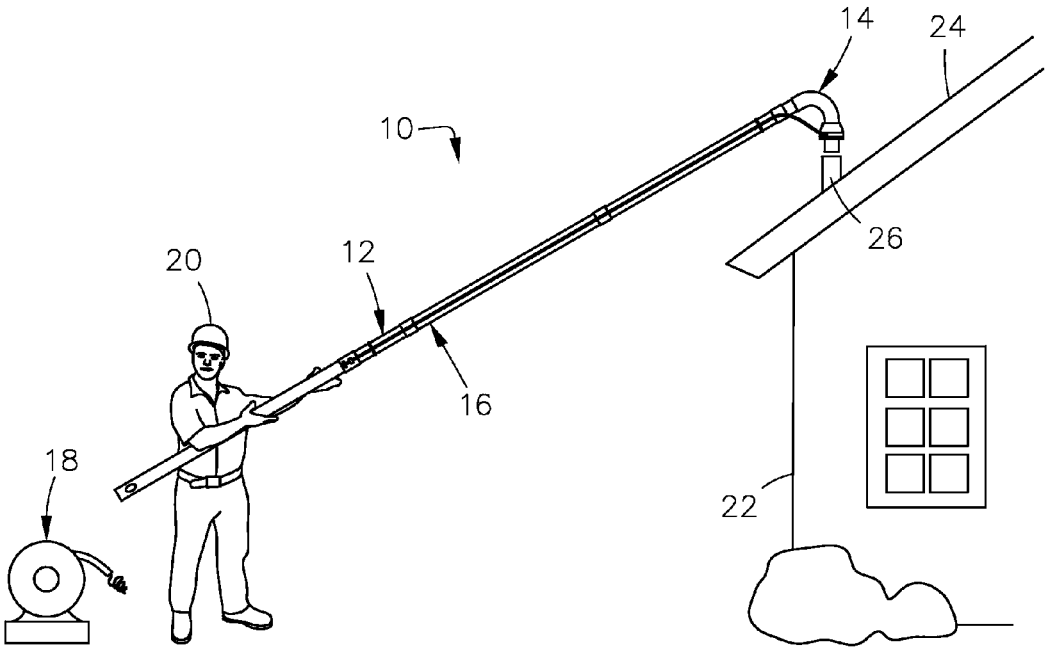


Fig. 1

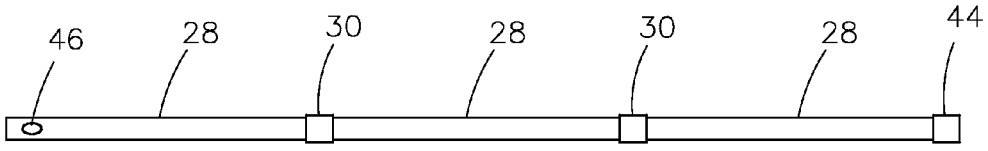


Fig. 2

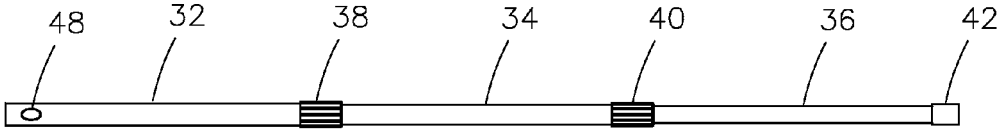


Fig. 3

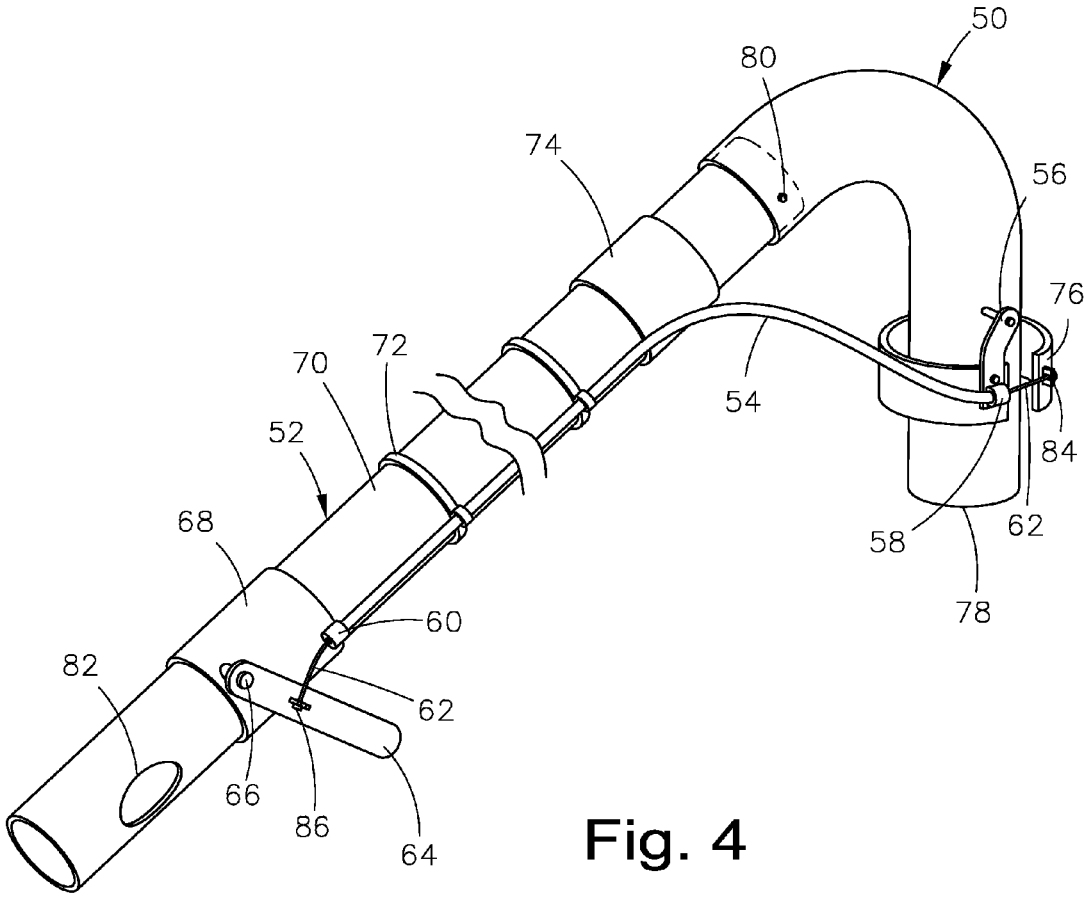


Fig. 4

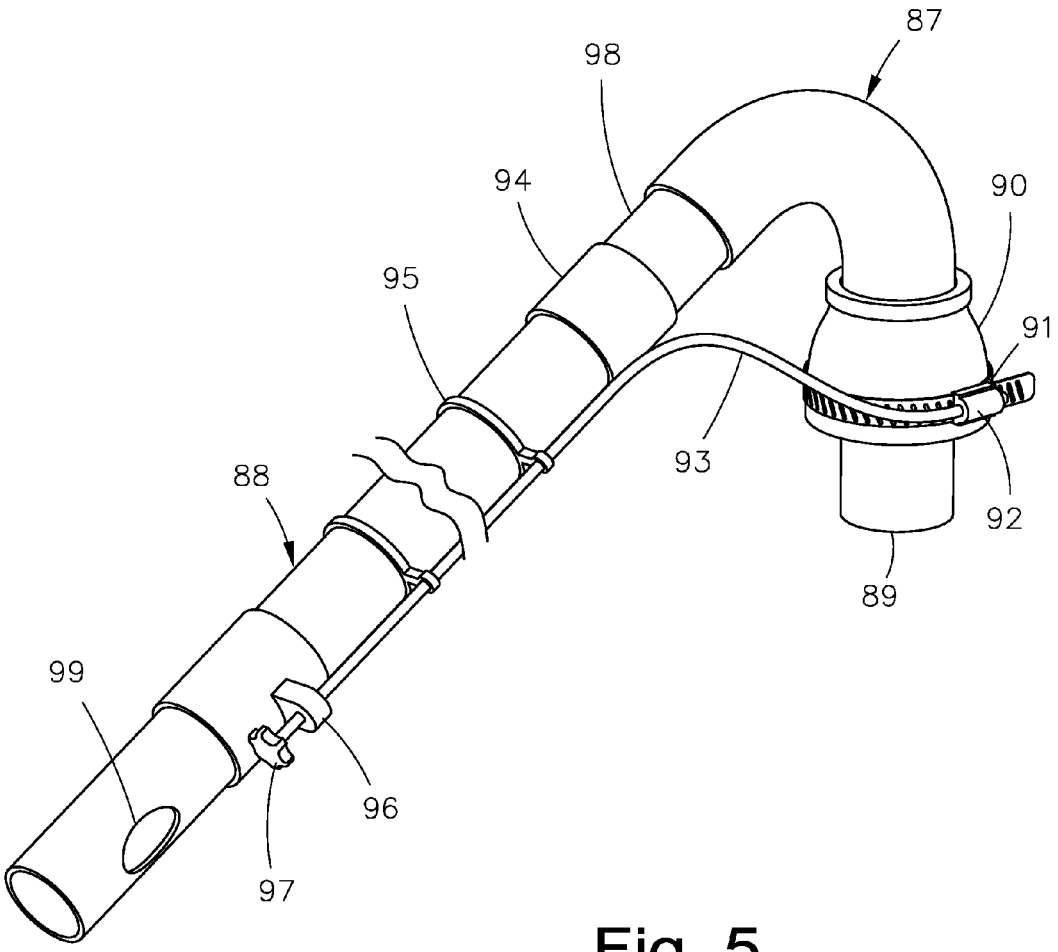


Fig. 5

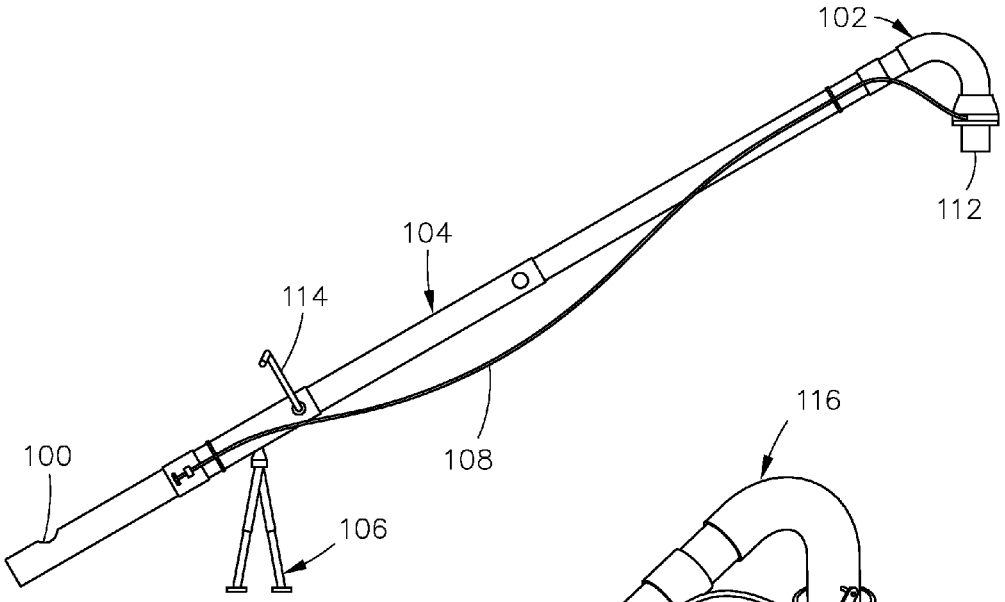


Fig. 6

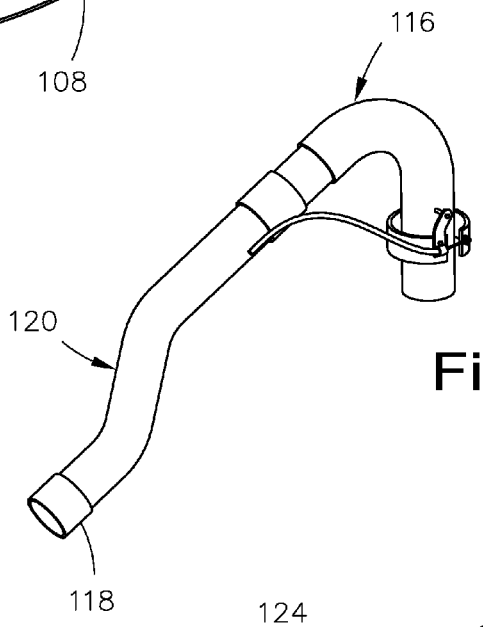


Fig. 7

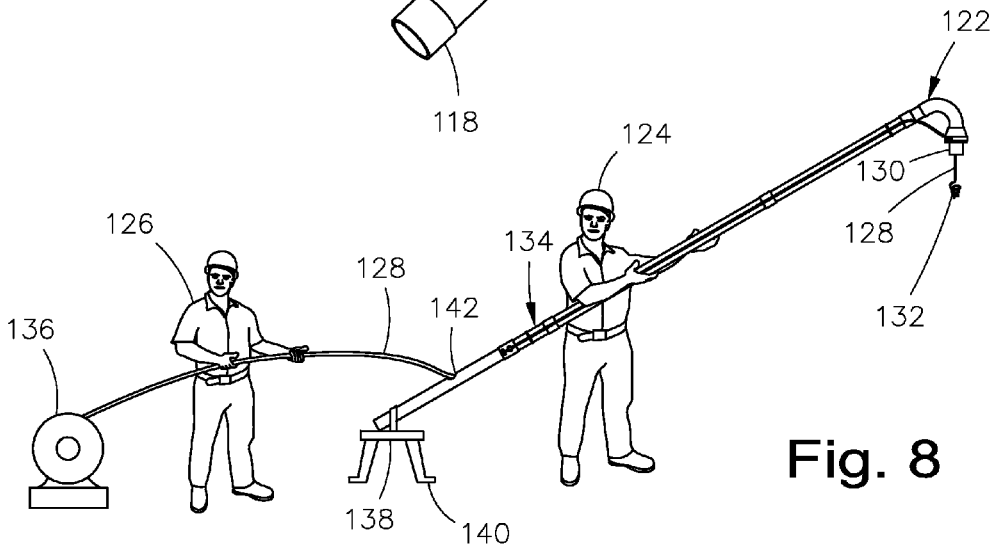


Fig. 8

CLEANOUT BOOM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to plumbing, and more particularly, to cleaning and inspecting roof vents and other plumbing pipes.

2. Description of the Related Art

Modern plumbing systems in residential and commercial structures are generally entirely gravity driven on the drain side of the equation. For water to quickly drain out of the bottom of the system, for example into a sewer or septic system, a vent must allow air into the pipes above the drain.

Vents are commonly vertical pipes that traverse a structure from the pipes in the walls or under the floors up through the roof.

Vent pipes, sometimes referred to as vent stacks, conveniently provide a point of access into the plumbing system for inspection, repair and, most commonly, clean out.

It is common practice for plumbers to insert long wire snakes into roof vents that travel down the vent then into the drain pipes inside or under the structure. The snakes can break up an obstruction so it can be flushed out or can attach to a clog to pull it back up the stack.

More recently, as an alternative to metal snakes, a high pressure water jet hose can be fed down the stack to free a clog in a pipe.

In some cases video inspection cameras can be fed down a vent pipe on a long signal cable to get an improved diagnosis of the conditions and problems inside of a pipe.

Several designs for roof vent pipe cleaning and inspection tools have been designed in the past. None of them, however, includes a device that can be operated from the ground to attach onto a roof vent stack and effectively clean out and inspect the pipe without a person ever getting onto the roof of the structure.

Applicant believes that the closest reference corresponds to commonly used wire cleanout snakes, brushes, high pressure water washers and the like. A plumber must climb the roof to access the roof vent (or other plumbing structure to be examined or cleared). Heavy equipment, such as a snake reel with motor, must be up and carried onto the roof with them.

This creates a potentially dangerous situation involving personnel climbing a latter. The equipment that the plumber will use must be carried up the ladder or hoisted from the roof. Either situation carries with it risk for both the plumber on the roof and other people on the ground below.

A wire snake assembly with motor can weigh eighty pounds or more. In some cases with extended runs of snake the entire apparatus could weigh well over a hundred pounds. This is a significant amount for one man to carry up a ladder onto the roof.

Further, damage can result from a plumber on the roof damaging the roof itself or injuring himself by stepping through soft or damaged roofing structure when carrying heavy equipment.

Many injuries happen annually in the United States to plumbers and other tradesman falling off from roofs. It would greatly increase safety and decrease risk of injury to man and machine by avoiding placing either on a roof.

Other solutions have included boom and bucket trucks. In this solution a bucket truck must physically be positioned at the base of the structure and within reach of the area on the roof which requires attention. The boom has a limited range of reach. The truck can damage sensitive landscaping or other

elements. The boom trucks are expensive and also require a skilled operator to work safely.

Yet others may use scaffolding or climbing harnesses. Each is expensive and potentially dangerous. Special training and skill is usually required to use either of these methods safely.

Other patents describing the closest subject matter and commonly used techniques provide for a number of more or less complicated features and methods that fail to solve the problem in an efficient and economical way. None of these patents suggest the novel features of the present invention.

SUMMARY OF THE INVENTION

It is one of the main objects of the present invention to provide a plumbing cleanout that can be operated completely from the ground.

It is another object of this invention to provide a device to increase safety of the workers. Increased safety can mean reduced cost of insurance and risk of legal liability.

It is still another object of the present invention to provide a device that can aid in cleaning out or inspecting pipes in a fraction of the time that it would take to get workers and equipment onto the roof of a structure.

It is yet another object of this invention to provide such a device that is inexpensive to manufacture and maintain while retaining its effectiveness.

Another object of at least a version of the device is to be operable by a single worker.

Further objects of the invention will be brought out in the following part of the specification, wherein detailed description is for the purpose of fully disclosing the invention without placing limitations thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

With the above and other related objects in view, the invention consists in the details of construction and combination of parts as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

FIG. **1** represents a perspective view of a worker on the ground using a cleanout boom.

FIG. **2** shows an elevation view of a segmented version of a pole assembly.

FIG. **3** illustrates an elevation view of a telescoping version of a pole assembly.

FIG. **4** is a perspective representation of a head assembly.

FIG. **5** is a perspective view of a version of a head assembly.

FIG. **6** shows a perspective view of a version of a cleanout boom.

FIG. **7** is a perspective view of an offset segment and a head assembly.

FIG. **8** is a perspective view of a cleanout boom as it might be in use.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, where the present invention is generally referred to with numeral **10**, it can be observed in FIG. **1** that it basically includes a pole assembly **12**, a head assembly **14**, a clamp assembly **16** and a reamer assembly **18**. An operator **20**, a house **22** and a vent **26** are shown for context and are not considered elements of the device.

It can be seen in FIG. **1** that the device is generally used by an operator **20** on the ground near a house **22** or other struc-

ture. The pole assembly **12** is controlled by the operator **20** on the lower end. On the upper end of the pole assembly **12** is affixed a head assembly **14**.

The head assembly **14** is positioned over a vent **26** pipe on the roof **24** of the house **22** by the operator **20** manipulating the pole assembly **12**. Once the head assembly **14** is set onto the vent **26**, the operator can activate the clamp assembly **16** from the ground to gain a positive connection between the head assembly **14** and the vent **26**. The operator **20** ideally never leaves the security of the ground.

Now that the head assembly **14** is firmly attached to the vent **26** then the operator **20** can set the lower end of the pole assembly **12** down (or onto a stand or legs as described below). The operator **20** then addresses the reamer assembly **18** by feeding the reamer along the length of the pole assembly **12** then through the head assembly **14** and into the vent **26** and beyond in the plumbing system of the structure.

It should be appreciated that although this example and some of the other examples contained herein refer to a reamer, there are a number of devices that can be used with the cleanout boom. For example, a snake, an auger, a pressure washer, a camera, or a location identifier can be used effectively.

Another application may include pipe repair apparatus such as remote manipulators, grout or sealant balloons and pumps or other available methods and apparatus for inspecting and repairing pipes when accessed from a roof vent.

Referring now to FIG. **2** where a version of a pole assembly is shown to include, among other things, several segments **28**, several unions **30**, a union **44** and an aperture **46**.

In this version of the pole assembly uses multiple segments **28** that are connected end to end with a union **30**. The union **30** could be manifest in a distinct fitting or could be integral with the ends of the individual segments. Segments **28** might be made available in a variety of lengths to mix and match together to achieve a desired overall length of the pole assembly.

Each of the segments **28** may be similar in diameter and thread configuration so that any segment **28** can be used in any order and the ends of each segment **28** are similar so that there is no discernable top or bottom end of each segment **30**.

In a variant of a pole assembly similar to that shown in FIG. **2** the segments **28** are lengths of pipe with external threads on each end. The unions **30** could then be a short (several inches) pipe with internal threads open at both ends. In this variant the unions **30** are similar to a common pipe union fitting.

The union **44** is adapted to be attached to a head assembly. The union **44** may be similar to the unions **30**. The union **44** may also be a particular fitting suited to attachment of a head assembly. For example, union **44** may be a hole and spring button type of attachment similar to that used on many tent poles, crutches and pool pole devices so that a head assembly can toollessly be installed and removed. Other clip mechanisms could also be effectively uses for attaching a pole assembly to a head assembly.

On the lower end of a pole assembly, opposite the end attached to a head assembly, is optionally an aperture **46**. The aperture **46**, if present, allows an access port to the interior of the pole assembly within which to insert a reamer assembly.

Alternatively to the aperture **46**, the reamer assembly can be inserted into the lower end of the pole assembly. However, there are advantages to having an aperture **46** when the pole assembly is used with the lower end on the ground or otherwise encumbered by a stand. This can allow easier pass through of a reamer assembly into the pole assembly.

Another alternative to an aperture is a series of eyelet guides along the length of the pole assembly. In a sense, this is similar in function to the eyelets on a common recreational fishing pole, to guide the reamer assembly along the length of the pole assembly and towards the head assembly where it enters into the roof vent.

Referring now to FIG. **3** where yet another effective version of a pole assembly is shown that includes, among other features, a segment **32**, a segment **34**, a segment **36**, a clamp **38**, a clamp **40**, a union **42** and an aperture **48**.

This variety of pole assembly differs at least in that the pole assembly is comprised of several telescoping segments **32**, **34** and **36**. Generally, the lower segment **32** would be larger than the next segment **34** which is in turn larger than the top segment **36**. When collapsed, segment **34** nests inside of segment **32** and segment **36** nests inside of segment **34**.

Although FIG. **3** shows three telescoping segments, there could be more or fewer segments depending on the design and application of the pole assembly. In most cases there will be between two and ten segments in each pole assembly.

When the desired length of extension or retraction is achieved by the operator the length of the pole assembly may be locked with a clamp, such as the clamp **38** between segment **32** and **34**. Likewise, the clamp **40** is similarly used between segment **34** and segment **36**. The clamps **38** and **40** can be any of a variety of clamping mechanisms such as a ferrule and compression fitting found on devices such as a telescopically extending pool skimmer net pole assembly. A twist of the clamp in one direction tightens the adjacent segments. A twist of the clamp in the other direction loosens the connection for telescoping the segments apart or together.

Optionally in any of the pole assemblies there is an aperture **48** in which the long snake cable or other reamer assembly can be continuously fed along the length of the pole assembly to extend its reach well into the vent and beyond into the plumbing structure of the building. Typically the aperture **48** in any version of the cleanout boom is near to the lower end of the pole assembly. The distance between the lower end and the aperture is generally from an inch or two from the end to about six feet from the lower end. The aperture should be positioned conveniently for an operator to access it and feed a reamer through it from a ground position.

In yet another version of the pole assembly there may be only a single segment of pole. This may be a simple and robust design suitable for lower roof lines and for access to vents that do not require the reach of other extendible poles.

Looking at FIG. **4** a version of cleanout boom that is shown to be comprised of an embodiment of a head assembly **50** and a version of a pole assembly **52** combination is exhibited and may include, among other elements, a sheathed cable **54**, a bracket **56**, a cable stop **58**, a cable stop **60**, a cable **62**, a handle **64**, a pivot **66**, a bracket **68**, a segment **70**, a strap **72**, a union **74**, a clamp **76**, a tip **78**, a hinge **80**, an aperture **84**, a stop **86** and a stop **88**.

Notice that FIG. **4** includes a break in the middle that is included to indicate that the proportions or length of the device is not necessarily to scale. Intermediate segments of pole assembly could be present in the break.

In the FIG. **4** version a more detailed view of a head assembly illustration is seen to include a flexible clamp **76**. Generally, in use the tip **78** of the head assembly **50** is inserted into a vent pipe on a roof. The tip **78** is allowed to be inserted to the point where the clamp **76** can be constricted around the exterior top of the vent pipe.

When the head assembly **50** is temporarily secured to the vent pipe then the snake or other reamer assembly can be threaded along the pipe assembly **52** from the ground by the operator and is guided through the head assembly **50** and directed down into the vent and then into the pipes below the

vent for repair, obstruction removal, inspections or any of the other beneficial uses shown herein.

The constriction mechanism of the clamp **76** is controlled from the ground by operation of the handle **64** in conjunction with the sheathed cable **54** and other elements. The sheathed cable **54** includes a cable **62** that slides axially inside a sheath. The sheath remains relatively fixed during operation of the mechanism and is held in place on the head assembly **50** at the cable stop **58** affixed to the bracket **56**. On the lower end of the pole assembly **52** the sheath is held in place by the cable stop **60**.

When the handle **64** is actuated about pivot **66** it acts a lever to pull the cable **62** out of the sheath or to push the cable back into the sheath. The handle **64** connects to the handle at stop **86**.

In the embodiment of the device shown in FIG. **4**, when the handle **64** is pulled back towards the lower end of the pole assembly the cable **62** is drawn out of the sheath at the stop **60**. This pulling action is translated by the cable **62** to the stop **84** so that the stop **84** is pulled toward the cable stop **58** and the clamp **76** is thus constricted to grab onto the vent.

The cleanout boom may be provided with clamps **76** of several diameters to accommodate various diameters of vent pipe. It is important for efficient use that the head assembly **50** be securely attachable to the vent. A clamp **76** may be dimensioned to work with a range of vent pipe diameters.

The bracket **68** connects the handle **64** assembly and cable stop **60** to the pole assembly **52**. The bracket **68** allows for flexibility in locating the handle on a segment **70** of pole assembly **52**.

Similarly, bracket **56** secures the upper end of the sheathed cable **54** and the cable stop **58** from the head assembly **50** to the clamp **76**. The bracket **76** holds the clamp **76** in relative position to the tip **78** so that the tip **78** and clamp **76** are appropriately juxtapositioned for insertion into a vent and clamping the head assembly **50** to the outside surface of the vent.

Union **74** is optionally present to connect the head assembly **50** to the pole assembly **52** and yet allow disassembly when necessary for breakdown, storage and transport of the cleanout boom.

Similar to other versions of the device, an aperture is provided to allow the reamer assembly to be inserted and fed into and through the pole assembly **52** and then onto and out through the tip **78** of the head assembly **50** where it can do its work.

Another optional feature demonstrated in FIG. **4** is the hinge **80** that is near the connection between the pole assembly **52** and the head assembly **50**. The hinge **80** may be a loose rivet or bolt on either side of the head assembly and through a section of pipe.

The hinge **80** allows a range of articulation between the head assembly **50** and the axis of the pole assembly **52**. This is useful to allow easier entry of the tip **78** into the vent. In many anticipated uses it may be easier to have the tip **78** portion of the head assembly as close to vertical as possible because the vent pipe to which it will mate are generally plumb.

For example, a shorter distance between the operator and a roof vent may require a smaller angle between the head assembly **50** and pole assembly **52** to better engage the tip **78** into the vent. Conversely, for a longer distance between the operator combined with a lower vent it may be preferred to have an angle between the pole assembly **52** and head assembly **50** nearer to a right angle.

In some versions of the device the hinge **80** is relatively tight due to friction in the joint so that the angle between the pole assembly **52** and head assembly **50** is estimated and set on the ground level before the head assembly **50** is raised over the roof vent.

In yet other versions the hinge **80** is relatively loose and the vertical orientation of the tip **78** on the head assembly **50** is maintained by gravity for easier insertion of the tip **78** into the vent.

In another method of use the tip **78** is set into the top opening of the vent and the pole assembly is pushed or pulled to articulate the head assembly **50** to achieve vertical orientation of the tip **78** for improved insertion into the vent.

Straps **72** are optionally provided to hold the sheathed cable **54** in position along the length of the pole assembly **52**. This helps prevent the sheathed cable **54** from tangling with or interfering with other elements of the job site or device. The straps **72** could be formed of clips, straps, bands or the like that allow capture and removal of the sheathed cable **54** from the side of the pole assembly.

The sheathed cable **54** can also be routed inside the interior of the pole assembly **52** and then exit the pole assembly **52** before reaching the head assembly **50**.

FIG. **5** exhibits a variant of a cleanout boom that has an alternative head assembly **87** and optional pole assembly **88** that is shown to include, by way of example, a tip **89**, a boot **90**, a clamp **91**, a cinch **92**, a flex shaft **93**, a union **94**, a strap **95**, a bracket **96**, a segment **97** and an aperture.

FIG. **5** also includes a break near the middle of the figure similar to that shown in FIG. **4** to indicate that a portion of the pole assembly **88** has been excised for compact presentation.

This figure should not, nor any of the other several drawings provided herein, be used to indicate dimensions or to extrapolate precise relationships and proportionality. Instead, some of the drawings are somewhat stylized to emphasize an enabling embodiment and for clarity.

This combination in FIG. **5** demonstrates several other optional features that may be used in combination or mixed and matched with other features, variations and embodiments. Particularly FIG. **5** is shown to emphasize an alternated head assembly **87** and clamp **91** mechanism as well as a flexible segment **98**.

The pole assembly **88** is connected to the head assembly **87** with a union **94**. The union **94** allows easy attachment and separation of the head assembly **87** from the pole assembly **88**.

The boot **90** in combination with clamp **91** and other elements is used to attach the head assembly **87** to a roof vent. The flex shaft **93** allows the operator to tighten the clamp **91** from the low end of the pole assembly **88** while standing on the ground.

During a typical use the pole assembly **88** is configured at the required length and the head assembly **87** is attached to the pole assembly. The tip **89** of the head assembly **87** is lowered into the upper opening of the vent pipe. As the tip **89** is inserted the boot **90** covers the outside of the top of the pipe. The clamp **91** can then be constricted to securely connect the head assembly **87** to the vent.

The clamp **91** around the periphery of the lower edge of the boot **90** has a cinch **92**. The cinch **92** may take the form of a worm gear that engages into matching cutouts in the clamp **91**. Similar clamps are available as hose clamps, band clamps, radiator clamp and other similar types of products. Generally, when the worm gear is rotated with a wrench or screwdriver the circumference of the clamp is reduced or enlarged.

The cinch **92** is connected to a flex shaft **93** at an upper end and at a lower end the flex shaft **93** is connected to a handle **97**. The handle is allowed to rotate axially in the bracket **96** that is

attached to the lower end of the pole assembly **88** where it can be manipulated by the operator while remaining standing on the ground.

The flex shaft **93** allows the torque applied to the handle **97** to be efficiently transferred to the cinch **92** so that the cinch **92** can be rotated to tighten or loosen the clamp **91**. The flex shaft **93** can be held adjacent to the pole assembly **88** by means of a strap **95**. The strap **95** should not impede the axial rotation of the flex shaft so that the torque applied to the handle **97** is easily communicated to the cinch **91**.

The flex shaft **93** transfers rotation in the handle **97** to rotation at the cinch **92**. For one rotation of the handle **97** the flex shaft **93** and cinch **92** each rotate one revolution. The flex shaft **93** allows the torque to make the turn between the head assembly **87** and pole assembly **88**. The flex shaft **93** works well when the head assembly **87** is articulated at various angles relative to the pole assembly **88**.

There may be various sizes of boots **90**. Since the diameter of vent pipes can vary so should the possibilities of sizes of the boot **90** and clamp **91** combination. The tip **89** should be securable to the vent pipe so that when the snake or camera is inserted into the vent that the head assembly **87** does not separate from the vent during normal operation.

The segment **98** is optionally present and provides a predetermined degree of flex between the pole assembly **88** and the head assembly **87**. The result of the segment **98** is similar to the hinge **80** described as shown in FIG. **4**. The flexible nature of the segment **98** can aid the operator in getting the tip **89** vertical for insertion into the vent.

The segment **98** can be semi-rigid segmented pipe that conforms to various angles while on the ground or in use. The segment **98** could also be made of a rubber-like material that gives some degree of flexibility between the head assembly **87** and pole assembly **88** to better position the tip **89** for insertion into the vent.

Aperture **99** is optionally present and is used to allow access to the interior of the pole assembly **88** to run the snake, auger or other reamer assembly towards and through the head assembly **87**.

A version of the head assembly can also be actuated by a hydraulically actuated clamp positioned above the tip of the head assembly and operated by a small hydraulic pump near the lower end of the pole assembly where it can be easily actuated by an operator on the ground.

Another version includes a battery powered clamp on the head assembly that is controlled by a wireless remote control. This can obviate the need for mechanical controls that span the length of the pole assembly.

Now referring to FIG. **6**, a specimen of a cleanout boom is visible that includes, inter alia, a head assembly **102**, a pole assembly **104**, a leg assembly **106**, a flex shaft **108**, an aperture **110**, a tip **112** and a crank **114**. The flex shaft **108** is similar in form and function to the version shown in FIG. **5** and described in more detail above.

This drawing in FIG. **6** is provided to show optional features that may, in some varietals of the cleanout boom, be present. This version may include telescoping segments of the pole assembly **104** that can be mechanically extended and retracted with crank **114**. This may be suitable for heavier duty or longer reach cleanout booms. A gear mechanism associated with the crank **114** moves the telescoping pole assembly **104** in and out.

Optional leg assemblies **106** are shown to support heavier or longer cleanout booms. The leg assemblies **106** may be adjustable in length so that the angle of the pole assembly **104** relative to the ground can be adjusted and then fixed in place. The leg assemblies **106** may optionally fold against the lowermost segment of the pole assembly **104**.

FIG. **7** is a demonstration of accessories that may be used to enhance the performance of the cleanout boom in certain situations and for some uses. These are explained as a head unit **116**, a union **118** and an offset assembly **120**.

Particularly the offset assembly **120** is pointed to in this example. It generally includes a plurality of bends in a section of pole assembly that can be useful when attempting to mate a head assembly **116** to a difficult to reach roof vent. Often there are multiple roof protrusions or other obstacles to get around when setting up the cleanout boom.

An offset assembly **120** can connect to the upper end of a pole assembly at the union **118** on one end and on the other end of the offset assembly **120** to the head assembly **116**. The offset assembly **120** can be used with any version of the head assemblies or pole assemblies described herein.

Reviewing FIG. **8** in more detail some optional variants and some elements seen in other versions of the cleanout boom are shown to generally include, along with other features that may or may not be clearly seen in this drawing, a head assembly **122**, a reamer **128**, a tip **130**, a tip **132**, a pole assembly **134**, a reamer assembly **136**, a base **138**, several feet **140** and an aperture **142**. Also shown but not as part of the claimed cleanout boom invention are an operator **124** and another operator **126** working together.

FIG. **8** is a reasonable example of how two people, in this case operator **124** and operator **126**, can work in concert to effectively employ a version of a cleanout boom. In this case the operator **124** steadies and positions the pole assembly **134** so that the head assembly **122** is over the subject vent pipe. The tip **130** is placed over the top of the vent pipe and the head assembly **122** secured to the exterior side of the vent pipe.

Once the head assembly **122** is attached, then the operator **126** can begin to feed the reamer **128** from the reamer assembly **136** into the aperture **142**. The reamer **128** is forced up through the pole assembly **134** and through the head assembly **122** where the reamer **128** exits the tip **130** and then the tip **132** is forced into the vent pipe and to the plumbing pipes below.

When the operators' work is done then the reamer **128** can be retracted onto the reamer assembly **136** and the cleanout boom can be disassembled for storage or transport.

Similar to some of the other examples, this cleanout boom has a pole assembly **134** that makes up the majority of the length of the boom. The base **138** is provided at the back end of the pole assembly **134** to provide mass and structure to anchor the end of the pole assembly **134** to the ground. Feet **140** are provided to prevent a rotation of the pole assembly **134** when torque is applied to the reamer **128**.

A version of the cleanout boom can be fairly described as having, inter alia, a pole assembly and a head assembly. The pole assembly has a first end at the bottom and a second end at the top. The head assembly has a clamp between a first end and a tip. The clamp clamps to the roof vent to secure the head to the roof vent when running a snake or other device into the vent. The second end of the pole assembly is affixed to the first end of the head assembly so that they are connected. The tip is dimensioned to engage into a predetermined vent pipe on a roof. When the tip is engaged into the vent pipe to a predetermined dimension, somewhere on the order of about one to twenty inches with about six inches effective for many applications, then the clamp is positioned around an exterior top of the vent pipe to grab around the pipe. The clamp can be operatively tightened to affix the tip inside the vent pipe and loosened to release the head assembly from the vent pipe. A control, handle, lever or similar device takes input from the

operator and affects the clamp to grab and hold onto the vent stack. The clamp has a control that is positioned to be accessible by an operator standing on a ground that effectively tightens or loosens the clamp when both the tip is engaged into the vent pipe and the clamp is around the exterior top of the vent pipe. Depending on the application the clamp might be in the bottom six feet or so of the pole assembly, but this is not a precise measurement as long as it can be operated while the boom is in use and from the ground. The pole assembly and head assembly when combined have a continuous interior volume from the an aperture near the first end of the pole assembly through the head assembly. This is a chase for a reamer, camera, etc. . . . . The interior volume is dimensioned to accept a long plumbing apparatus. The long plumbing apparatus is selected from any of a plumber's snake, a pressure washer cleanout, a camera, or pipe repair tool.

The device can also include optionally a head assembly that includes an articulating hinge to vary the angle between the pole assembly and the head assembly. The angle between the head and axis of the tip segment of the head assembly is often between about 45 and 90 degrees, but this is not required to be in this range and remain within the spirit of the invention. The bend should be enough so that the tip can easily insert into the vent stack and the snake can still easily pass through the pole assembly and head assembly out the tip and into the vent. The head assembly could also include a flexible segment, like a rubber pipe section, that flexes to vary the angle between the pole assembly and the head assembly. The pole assembly can be comprised of a plurality of telescoping pipe segments or of a plurality of pipe segments each connected end to an adjacent pipe segment with a union. Optionally the pole assembly can have a base or legs at the first end, or the lower half of the pole assembly that prevents the pole assembly from rolling axially during use when the snake is torqued and forced through the device.

The foregoing description conveys the best understanding of the objectives and advantages of the present invention. Different embodiments may be made of the inventive concept of this invention. It is to be understood that all matter disclosed herein is to be interpreted merely as illustrative, and not in a limiting sense.

What is claimed is:

1. A cleanout boom comprised of a pole assembly and a head assembly;

the pole assembly has a first end and a second end;

the head assembly has a clamp between a first end and a tip;

the second end of the pole assembly is affixed to the first end of the head assembly;

the tip is dimensioned to engage into a predetermined roof vent pipe and guide the head assembly over the roof vent pipe;

when the tip is engaged into the roof vent pipe to a predetermined dimension then the clamp is positioned around an exterior top of the roof vent pipe;

the clamp can be operatively tightened to affix the tip inside the roof vent pipe and loosened to release the head assembly from the roof vent pipe;

the clamp has a remote control that is positioned at the first end of the pole assembly that tightens or loosens the clamp onto the roof vent pipe when both the tip is engaged into the roof vent pipe and the clamp is around the exterior top of the roof vent pipe;

the pole assembly and head assembly when combined have a continuous interior volume from an aperture near the first end of the pole assembly through the head assembly;

the interior volume is dimensioned to accept a long plumbing apparatus continuously from the aperture, through the head assembly and into the roof vent pipe so that the plumbing apparatus can be fed through the interior volume and guided into the roof vent pipe;

the long plumbing apparatus is selected from any of a plumber's snake, a pressure washer cleanout, a camera, or pipe repair tool.

2. A cleanout boom as disclosed in claim **1** further characterized in that the head assembly includes an articulating hinge to vary the angle between the pole assembly and the head assembly.

3. A cleanout boom as disclosed in claim **1** further characterized in that the head assembly includes a flexible segment that flexes to vary the angle between the pole assembly and the head assembly.

4. A cleanout boom as disclosed in claim **1** further characterized in that the pole assembly is comprised of a plurality of telescoping pipe segments.

5. A cleanout boom as disclosed in claim **1** further characterized in that the pole assembly is comprised of a plurality of pipe segments each end connected to an adjacent pipe segment with a union.

6. A cleanout boom as disclosed in claim **1** further characterized in that the pole assembly has a base at the first end that prevents the pole assembly from rolling axially during use.

7. A cleanout boom comprised of a pole assembly and a head assembly;

the pole assembly has a first end and a second end;

the head assembly has a clamp between a first end and a tip;

the second end of the pole assembly is affixed to the first end of the head assembly;

the tip is dimensioned to engage into a predetermined roof vent pipe and guide the head assembly over the roof vent pipe;

when the tip is engaged into the roof vent pipe to a predetermined dimension then the clamp is positioned around an exterior top of the roof vent pipe;

the clamp can be operatively tightened to affix the tip inside the vent pipe and loosened to release the head assembly from the roof vent pipe;

the clamp has a remote control that is positioned at the first end of the pole assembly that tightens or loosens the clamp onto the roof vent pipe when both the tip is engaged into the roof vent pipe and the clamp is around the exterior top of the roof vent pipe;

the pole assembly and head assembly when combined have a continuous interior volume from an aperture near the first end of the pole assembly through the head assembly;

the interior volume is dimensioned to accept a long plumbing apparatus continuously from the aperture, through the head assembly and into the roof vent pipe so that the plumbing apparatus can be fed through the interior volume and guided into the roof vent pipe;

the long plumbing apparatus is selected from any of a plumber's snake, a pressure washer cleanout, a camera, or pipe repair tool;

the head assembly includes an articulating hinge to vary the angle between the pole assembly and the head assembly;

the pole assembly is comprised of a plurality of pipe segments each connected end to an adjacent pipe segment with a union;

the pole assembly has a base at the first end that prevents the pole assembly from rolling axially during use.

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